

REMARKS

Claims 1, 3-5, 8-11, 13-15 and 18-21 are pending in this application and claims 1, 3-5, 8-11, 13-15 and 18-21 stand rejected.

Claim Rejections Under 35 U.S.C. §101

Claim 21 stands rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Specifically, the Examiner asserts that the claim limitations of claim 21 do not yield a useful, tangible, concrete result. However, MPEP §2106(IV)(1)(a) states,

“In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory.”

Therefore, if the computer program is embedded on a computer-readable medium and defines functional interrelationships between the computer program and the rest of the computer then it is statutory. Further, the claim language of claim 21 already provides for a useful, tangible, concrete result by reciting “adjusting the level of said output digital sound signal in said sound period based on said held sound level and a preset target level; and performing speech recognition based on said adjusted digital sound signal”. Therefore, claim 21 has been amended to more clearly indicate that the program is embodied on a computer-readable medium and executable by a computer.

Therefore, withdrawal of the rejection of Claim 21 under 35 U.S.C. 101 is respectfully requested.

Claim Rejections Under 35 U.S.C. §103

Claims 1, 4, 5-7, 11, 14-17 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2500761 in view of JP 60-16200 and further in view of Ichikawa et al. (US Patent No. 4,985,923).

The rejection of independent claims 1, 11 and 21 provided on pages 6-7, item 6 of the Office Action is similar to that provided in the Office Action mailed December 20, 2006 with the exception that the Examiner asserts that newly introduced reference Ichikawa et al. (US Patent No. 4,985,923) to describe storing and outputting digital sound signal using a first and second buffer.

The present invention is a speech recognition device. There are a total of four embodiments described in the specification for this speech recognition device. In this speech recognition device is included as shown in Figure 1 a microphone connected to an A/D converter (2). The A/D converter (2) is connected to both a signal delay unit (3) and a sound level estimator (4). The sound level estimator (4) calculates a sound level estimation value based on the applied digital sound signal. The signal delay unit (3) applies the digital sound signal delayed by a predetermined sound level rising time period to a sound level adjuster (5). The sound level adjuster (5) adjusts the sound level of the digital sound signal based on the sound level estimation value. The adjusted sound level output is sent to the speech recognition unit (6) where speech recognition is performed.

JP 2500761 describes a speech recognition device in which amplification is set to a constant level so that gain of the amplification means is rendered large for small voices and rendered small for large voices. As described in paragraphs 7 and 17 the result of voice recognition does not vary with distance or volume of the voice and voice recognition is greatly improved.

JP 60-16200 describes a voice recognition system in which a delay circuit (13) delays a voice input signal.

Ichikawa et al. (US Patent No. 4,985,923) describes using two sections of a buffer (203) to hold speech data uninterruptedly while the other section is processed. Specifically, column 4, lines 4-9 of Ichikawa et al. states,

“In FIG. 2, an input speech signal 201 is transformed into a digital signal by an A/D converter 202, and it is fed to an input buffer 203. The buffer 203 has two data holding sections so that during the encoding process for speech data with a certain length the next speech data can be held uninterruptedly.” (Emphasis Added)

Based upon the above description, independent Claims 1, 11 and 21 have been amended to overcome the prior art. One feature that is included in amended independent Claims 1, 11 and 21 that Applicants believe would overcome the prior art are the three equations which indicate the method by which sound level is adjusted as discussed on page 22 and 23 of the specification. Therefore, independent claims 1, 11 and 21 overcome the recited prior art and withdrawal of the rejection of claims 1, 4, 5-7, 11, 14-17 and 21 under 35 U.S.C. §103(a) as being unpatentable over JP 2500761 in view of JP 60-16200 and further in view of Ichikawa et al. (US Patent No. 4,985,923) is respectfully requested.

Claims 3, 10, 13 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2500761 in view of JP60-16200 and Ichikawa, and further in view of JP 126093 (Okamoto).

JP 126093 (Okamoto) describes a voice adjusting method in which a level decision part (42) decides whether the measured sound level resides within a prescribed range and outputs an input gain control signal to control the input voice so that it lies within the prescribed range.

In light of the amendments to claims 1, 11 and 21, no further amendments have been made to any other claims due to the teachings of JP 126093 (Okamoto). Claims 3, 10, 13 and 20 are allowable by virtue of their dependence upon allowable independent claims. Therefore, withdrawal of the rejection of claims 3, 10, 13 and 20 under 35 U.S.C. §103(a) as being unpatentable over JP 2500761 in view of JP60-16200 and Ichikawa, and further in view of JP 126093 (Okamoto) is respectfully requested.

Claims 8-9 and 18-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2500761 in view of JP60-16200 and Ichikawa, and further in view of JP2975808 (Koichi).

JP2975808 (Koichi) describes a voice recognition device in which when voice recognition fails circuit (2C) is switched to increase the gain on the variable gain amplifier (2B).

In light of our recommendation to amend claims 1, 11 and 21, no further amendments have been made to any other claims due to the teachings of JP2975808 (Koichi). Claims 8, 9, 18 and 19 are allowable by virtue of their dependence upon allowable independent claims. Therefore,

withdrawal of the rejection of claims 8-9 and 18-19 under 35 U.S.C. §103(a) as being unpatentable over JP 2500761 in view of JP60-16200 and Ichikawa, and further in view of JP2975808 (Koichi) is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claims 1, 3-5, 8-11, 13-15 and 18-21, as amended, are believed to be in condition for allowance, which action, at an early date, is respectfully requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP



George N. Stevens
Attorney for Applicant
Reg. No. 36,938

GNS/nrp
Atty. Docket No. 020274
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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